

Application No. 10/074,179
Docket No. 10006288-1

Amendments to the Claims:

This listing of claims will replace all prior versions in the application:

Listing of Claims:

1. (Canceled)
2. (Canceled)
3. (Previously Presented) A method for assessing the photo quality of a captured image in a digital camera, said method comprising:
 - checking, in-camera, the photo quality of the captured image to determine if the photo quality is acceptable; and
 - providing a corresponding photo quality feedback to a camera user, wherein the checking step comprises:
 - computing a photo sharpness figure of merit for the captured image; and
 - comparing said computed photo sharpness figure of merit to a threshold to determine if said photo sharpness figure of merit exceeds said threshold, the computing step further comprising:
 - generating a line pixel profile of the captured image;
 - computing an absolute difference in a channel gray level between adjacent pixels in the horizontal direction using said line pixel profile; and
 - picking the maximum absolute difference as the photo sharpness figure of merit.

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4. (Original) The method of claim 3 further comprising:
transforming the captured image from RGB color space into YCrCb color space.
5. (Original) The method of claim 3 further comprising:
transforming the captured image from RGB color space into L*a*b color space
6. (Previously Presented) A method for assessing the photo quality of a captured image in a digital camera, said method comprising:
checking, in-camera, the photo quality of the captured image to determine if the photo quality is acceptable; and
providing a corresponding photo quality feedback to a camera user, wherein the checking step comprises:
computing a photo sharpness figure of merit for the captured image; and
comparing said computed photo sharpness figure of merit to a threshold to determine if said photo sharpness figure of merit exceeds said threshold, the computing step further comprising:
generating a line pixel profile of the captured image;
computing the absolute difference in a channel gray level between adjacent pixels in the horizontal direction using said line pixel profile, said computed absolute difference constituting a plurality of data points;
ranking said data points in value;
dropping at least a top 1% of said ranked data points from consideration; and

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picking a next top-valued data point as the photo sharpness figure of merit.

7. (Original) The method of claim 6 further comprising:
transforming the captured image from RGB color space into YCrCb color space.
8. (Original) The method of claim 6 further comprising:
transforming the captured image from RGB color space into L*a*b color space.
9. (Previously Presented) A method for assessing the photo quality of a captured image in a digital camera, said method comprising:
checking, in-camera, the photo quality of the captured image to determine if the photo quality is acceptable; and
providing a corresponding photo quality feedback to a camera user, wherein the checking step comprises:
computing a photo sharpness figure of merit for the captured image; and
comparing said computed photo sharpness figure of merit to a threshold to determine if said photo sharpness figure of merit exceeds said threshold, the computing step further comprising:
computing a magnitude of a two-dimensional gradient of a channel;
and
picking a maximum two-dimensional gradient magnitude as the photo sharpness figure of merit.

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10. (Original) The method of claim 9 further comprising:
transforming the captured image from RGB color space into YCrCb color space.
11. (Original) The method of claim 9 further comprising:
transforming the captured image from RGB color space into L*a*b color space.
12. (Previously Presented) A method for assessing the photo quality of a captured image in a digital camera, said method comprising:
checking, in-camera, the photo quality of the captured image to determine if the photo quality is acceptable; and
providing a corresponding photo quality feedback to a camera user, wherein the checking step comprises:
computing a photo sharpness figure of merit for the captured image; and
comparing said computed photo sharpness figure of merit to a threshold to determine if said photo sharpness figure of merit exceeds said threshold, the computing step further comprising:
computing a magnitude of a two-dimensional gradient of a channel, said computed two-dimensional gradient magnitude constituting a plurality of data points;
ranking said data points in value;
dropping at least a top 1% of said ranked data points from consideration; and

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picking a next top-valued data point as the photo sharpness figure of merit.

13. (Original) The method of claim 12 further comprising:
transforming the captured image from RGB color space into YCrCb color space
14. (Previously Presented) A method for assessing the photo quality of a captured image in a digital camera, said method comprising:
checking, in-camera, the photo quality of the captured image to determine if the photo quality is acceptable; and
providing a corresponding photo quality feedback to a camera user wherein said checking step further comprises:
computing a face quality figure of merit for the captured image; and
comparing said computed face quality figure of merit to a threshold to determine if said face quality figure of merit exceeds said threshold.
15. (Original) The method of claim 14 wherein the computing step comprises:
detecting facial image data from the captured image; and
converting said detected facial image data from RGB color space into L*a*b color space.

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16. (Currently Amended) The method of claim 15 further comprising:
computing the mean of L^* to obtain a brightness figure of merit; [.]
determining if said brightness figure of merit falls within a brightness threshold range.
17. (Original) The method of claim 15 further comprising:
computing the local standard deviation of L^* to obtain a noise figure of merit; and
determining if said noise figure of merit exceeds a noise threshold.
18. (Original) The method of claim 15 further comprising:
computing the overall standard deviation of L^* to obtain a contrast figure of merit;
and
determining if said contrast figure of merit falls within a contrast threshold range.
19. (Original) The method of claim 14 wherein the computing step comprises:
detecting facial image data from the captured image; and
converting said detected facial image data into a binary mask of only white and black pixels, wherein said white pixels represent pixels of red color and said black pixels represent pixels of colors other than red; and
checking said binary mask for presence of white pixels.
- 20 (Canceled)

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21. (Previously Presented) A method for assessing the photo quality of a captured image in a digital camera, said method comprising:
- checking, in-camera, the photo quality of the captured image to determine if the photo quality is acceptable; and
 - providing a corresponding photo quality feedback to a camera user, said checking step further comprising:
 - computing a flare figure of merit for the captured image;
 - comparing said computed flare figure of merit to a threshold to determine if said flare figure or merit exceeds said threshold; and
 - providing a corresponding flare feedback to said camera user wherein the computing step comprises:
 - generating a binary mapping of the captured image containing only black and white pixels, said white pixels representing saturated pixels of the captured image; and
 - subdividing said binary mapping into a plurality of regions.
22. (Original) The method of claim 21 further comprising:
- computing a percentage of white pixels in each region to obtain a flare figure of merit;
- and
- determining if said flare figure of merit in at least one region exceeds a flare threshold.
23. (Original) The method of claim 22 wherein said flare threshold is at least 50%.

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24. (Currently Amended) A method for assessing the photo quality of a captured image in a digital camera, said method comprising the steps of:

- computing, in-camera, a photo sharpness figure of merit for the captured image;
- comparing, in-camera, said computed photo sharpness figure of merit to a threshold to determine if said photo sharpness figure of merit exceeds said threshold;
- providing a corresponding photo sharpness feedback to a camera user[''];
- computing, in-camera, a face quality figure of merit for the captured image;
- comparing, in-camera, said computed face quality figure of merit to a threshold to determine if said face quality figure of merit exceeds said threshold;
- providing a corresponding face quality feedback to said camera user;
- computing, in-camera, a flare figure of merit for the captured image;
- comparing, in-camera, said computed flare figure of merit to a threshold to determine if said flare figure of merit exceeds said threshold; and
- providing a corresponding flare feedback to said camera user.

25. (Canceled)

26. (Previously Presented) A system for assessing the photo quality of a captured image in a digital camera, said system comprising:

- an image capture unit;
- an image processor operatively coupled to said image capture unit for processing the captured image;
- a photo quality check unit operatively coupled to said image processor for checking,

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in-camera, the photo quality of the processed image; and

a display operatively coupled to said photo quality check unit for providing a corresponding photo quality feedback to a camera user, wherein said photo quality check unit comprises:

a photo sharpness check module operatively coupled between said image processor and said display for checking in-camera the photo sharpness of the processed image;

a face quality check module operatively couple between said image processor and said display for checking in-camera the face quality of the processed image; and

a flare check module operatively coupled between said image processor and said display for checking in-camera the processed image for presence of flare.

27. (New) The method of claim 14, wherein the computing of the face quality figure of merit comprises

computing:

a brightness figure of merit;

a noise level figure of merit; and a contrast figure of merit

and

checking for a presence or an absence of red eye.